



[NAME OF DOCUMENT] SPECIFICATION

[TITLE OF THE INVENTION] SOLAR BATTERY

[WHAT IS CLAIMED IS:]

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[CLAIM 1] A solar battery employing a titanium dioxide (TiO_2) semiconductor, the solar batter being characterized in that the surface of the titanium dioxide semiconductor and inside of the titanium dioxide semiconductor are formed with pores, and the titanium dioxide semiconductor is held between one pair of electrodes, and the titanium dioxide semiconductor and at least one of the pair of electrodes form a rectification barrier.

[CLAIM 2] The solar battery as set forth in claim 1, characterized in that said rectification barrier is the Schottky barrier being formed by contacting the titanium dioxide semiconductor with the metallic electrode which is at least one of said pair of electrodes.

[CLAIM 3] The solar battery as set forth in claim 1, characterized in that the metallic electrode with which said titanium dioxide semiconductor forms the Schottky barrier is formed in such a way as to penetrate into the pores formed in the surface of the titanium dioxide semiconductor and inside of the titanium dioxide semiconductor.

[CLAIM 4] The solar battery as set forth in claim 1, characterized in that said titanium dioxide semiconductor is an anatase type titanium dioxide which has a porosity of 5 to 90%.

[CLAIM 5] The solar battery as set forth in claim 2, characterized in that the metallic electrode with which said titanium dioxide semiconductor forms the Schottky barrier is a transparent electrode made of ITO or the like, or a metal

such as Al, Ni, Cr, Pt, Ag, Au, Cu, Mo, Ti, and Ta, or a metallic alloy made of one or more of them.

[CLAIM 6] The solar battery as set forth in claim 1, characterized in that said electrodes are formed by vacuum evaporation method.

[CLAIM 7] The solar battery as set forth in claim 1, characterized in that said electrodes are formed by sputtering method.

[CLAIM 8] The solar battery as set forth in claim 1, characterized in that said electrodes are formed by printing method.

[CLAIM 9] The solar battery as set forth in claim 1, characterized in that said titanium dioxide semiconductor includes impurities such as Cr and/or V.

[CLAIM 10] The solar battery as set forth in claim 1, characterized in that said titanium dioxide semiconductor includes Mo.

[CLAIM 11] A solar battery unit employing a titanium dioxide (TiO_2) semiconductor, the solar battery unit being characterized in that the solar battery unit comprises a solar battery which is comprised of a titanium dioxide semiconductor being held between one pair of electrodes and being formed with pores in the surface of the titanium dioxide semiconductor and inside of the titanium dioxide semiconductor; and a first substrate and a second substrate which hold the solar battery.

[CLAIM 12] The solar battery unit as set forth in claim 11, characterized in that a reflection film is coated or arranged for reflecting rays such as solar rays on at least one of the first substrate and the second substrate which